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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/527,534

03/16/2000

Koji Suzuki

2400

23413

7590

09/07/2004

CANTOR COLBURN, LLP
55 GRIFFIN ROAD SOUTH
BLOOMFIELD, CT 06002

EXAMINER

SEFER, AHMED N

ART UNIT

PAPER NUMBER

2826

DATE MAILED: 09/07/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/527,534

Applicant(s) ⁶

SUZUKI, KOJI

Examiner

A. Sefer

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 April 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 10-12 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 10-12 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 4/6/04 has been entered.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 10-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kunii et al US Patent No. 5,412,493 in view of Kawamura US Patent No. 5,858,807.

Kunii et al disclose (see figs. 1-4) a thin film transistor comprising semiconductor film or poly-silicon film (as in claim 12), a first gate insulating film 7 or silicon oxide film (as in claim 11), a second gate insulating film 8 and a gate electrode 9 formed on a surface of substrate 1, wherein said first gate insulating film covers said semiconductor film, and said second gate insulating film is made of a material or silicon nitride film (as in claim 11) for supplying hydrogen to said semiconductor film, but do not specifically disclose an insulating film with a smaller film thickness in a region not covered with a gate electrode than one covered with a gate electrode.

Kawamura discloses (see fig. 1 and col. 3, lines 33-37) a silicon nitride insulating film 13 with a smaller film thickness in a region not covered with a gate electrode than a silicon nitride insulating film 8 in a region covered with said gate electrode formed on a silicon oxide insulating film (not shown) covering a semiconductor region.

Although applicant refers to the portion of the said insulating layer not covered with a gate electrode as gate oxide, it is nothing but a passivation layer which does not affect the channel region and through which contact regions can be formed as shown in fig. 3 of the invention. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teachings of Kawamura with Kunii et al's device, since that would minimize a degradation caused by hot carriers.

4. Claims 10-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ogawa (JP 5-335578) in view of Kawamura US Patent No. 5,858,807.

Ogawa discloses in fig. 6 a thin film transistor comprising a semiconductor film or poly-silicon film (as in claim 12), a first gate insulating film 3 or silicon oxide film (as in claim 11), a second gate insulating film 4 and a gate electrode 5 formed on a surface of substrate 1, wherein said first gate insulating film covers said semiconductor film, and said second gate insulating film is made of a material or silicon nitride film (as in claim 11) for supplying hydrogen to said semiconductor film, but do not specifically disclose an insulating film with a smaller film thickness in a region not covered with a gate electrode than one covered with a gate electrode.

Kawamura discloses (see fig. 1 and col. 3, lines 33-37) a silicon nitride insulating film 13 with a smaller film thickness in a region not covered with a gate electrode than a

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silicon nitride insulating film 8 in a region covered with said gate electrode formed on a silicon oxide insulating film (not shown) covering a semiconductor region.

Although applicant refers to the portion of the said insulating layer not covered with a gate electrode as gate oxide, it is nothing but a passivation layer which does not affect the channel region and through which contact regions can be formed as shown in fig. 3 of the invention. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teachings of Kawamura with Ogawa's device, since that would minimize a degradation caused by hot carriers.

As for the said second gate insulating film being integrally formed over said first gate insulating film recited in claim 10, it carries no patentable weight In re Larson 144 USPQ 347 (CCPA 1965) (the term "integral" did not define over a multi-piece structure secured as a single unit. More importantly, the court went further and stated, "we are inclined to agree with the solicitor that the use of a one-piece construction instead of the [multi-piece] structure disclosed in Tuttle et al. would be merely a matter of obvious engineering choice" (bracketed material added). The court cited In re Fridolph for support.)

Any inquiry concerning this communication or earlier communications from the examiner should be directed to A. Sefer whose telephone number is (571) 272-1921.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nathan Flynn can be reached on (571) 272-1915.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

ANS

July 25, 2004


Minhloan Tran
Primary Examiner
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